

A

<p align="center">UTILITY PATENT APPLICATION TRANSMITTAL</p> <p align="center"><i>(Only for new nonprovisional applications under 37 CFR 1.63(b))</i></p>	<p>Attorney Docket No. 518/K16-106</p>	<p>Total Pages</p>
	<p>First Named Inventor or Application Identifier</p>	
	<p>Michael HUNG</p>	
	<p>Express Mail Label No.</p>	

<p align="center">APPLICATION ELEMENTS</p> <p align="center"><i>See MPEP chapter 600 concerning utility patent application contents.</i></p>	<p>ADDRESS TO: Assistant Commissioner for Patents Box Patent Application Washington, D.C. 20231</p>
<p>1. <input checked="" type="checkbox"/> Fee Transmittal Form <i>(Submit an original, and a duplicate for fee processing)</i></p> <p>2. <input checked="" type="checkbox"/> Specification [Total Pages 9] <i>(preferred arrangement set forth below)</i></p> <ul style="list-style-type: none"> - Descriptive title of the Invention - Cross References to Related Applications - Statement Regarding Fed sponsored R & D - Reference to Microfiche Appendix - Background of the Invention - Brief Summary of the Invention - Brief Description of the Drawings <i>(if filed)</i> - Detailed Description - Claim(s) - Abstract of the Disclosure <p>3. <input checked="" type="checkbox"/> Drawing(s) <i>(35 USC 113)</i> [Total sheets - 6]</p> <p>4. Oath or Declaration [Total Pages - 2]</p> <ul style="list-style-type: none"> a. <input checked="" type="checkbox"/> Newly executed (original or copy) b. <input type="checkbox"/> Copy from a prior application (37 CFR 1.63(d)) <i>(for continuation/divisional with Box 17 completed)</i> [Note Box 5 below] <ul style="list-style-type: none"> i. <input type="checkbox"/> DELETION OF INVENTOR(S) Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b). <p>5. <input type="checkbox"/> Incorporation By Reference <i>(usable if Box 4b is checked)</i> The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.</p>	<p>6. <input type="checkbox"/> Microfiche Computer Program <i>(Appendix)</i></p> <p>7. Nucleotide and/or Amino Acid Sequence Submission <i>(if applicable, all necessary)</i></p> <ul style="list-style-type: none"> a. <input type="checkbox"/> Computer Readable Copy b. <input type="checkbox"/> Paper Copy (identical to computer copy) c. <input type="checkbox"/> Statement verifying identity of above copies
<p align="center">ACCOMPANYING APPLICATION PARTS</p>	
<p>8. <input type="checkbox"/> Assignment Papers (cover sheet & document(s))</p> <p>9. <input type="checkbox"/> 37 CFR 3.73(b) Statement <input type="checkbox"/> Power of Attorney <i>(when there is an assignee)</i></p> <p>10. <input type="checkbox"/> English Translation Document <i>(if applicable)</i></p> <p>11. <input type="checkbox"/> Information Disclosure <input type="checkbox"/> Copies of IDS Statement (IDS)/PTO-1449 Citations</p> <p>12. <input type="checkbox"/> Preliminary Amendment</p> <p>13. <input checked="" type="checkbox"/> Return Receipt Postcard (MPEP 503) <i>(Should be specifically itemized)</i></p> <p>14. <input checked="" type="checkbox"/> Small Entity Statements (cover sheet & document(s)) <input type="checkbox"/> Statement filed in prior application, Status still proper and desired</p> <p>15. <input type="checkbox"/> Certified Copy of Priority Document(s) <i>(if foreign priority is claimed)</i></p> <p>16. <input checked="" type="checkbox"/> Other Change of Address</p>	
<p>17. If a CONTINUING APPLICATION, check appropriate box and supply the requisite information: <input type="checkbox"/> Continuation <input type="checkbox"/> Divisional <input type="checkbox"/> Continuation-in-part (CIP) of prior application No.</p>	
<p align="center">18. CORRESPONDENCE ADDRESS</p>	
<p>WENDEROTH, LIND & PONACK Southern Building - Suite 700 805 Fifteenth Street, N.W. Washington, D.C. 20005</p> <p>Phone: (202) 371-8850 Fax: (202) 371-8856</p>	

050023794 021398

THE COMMISSIONER IS AUTHORIZED
TO CHARGE ANY DEFICIENCY IN THE
FEE FOR THIS PAPER TO DEPOSIT
ACCOUNT NO. 23 0975.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of :
Michael HUNG :
Serial No. NEW : ATTN: APPLICATION BRANCH
Filed February 13, 1998 : Attorney Docket No.
518/K16-106
SHUTTLE VALVE OF A :
RECIPROCATING PNEUMATIC
MOTOR FOR HYDRAULICS

PATENT OFFICE FEE TRANSMITTAL FORM

Assistant Commissioner for Patents,
Washington, D.C.

Sir:

Attached hereto is a check in the amount of \$395.00 to cover Patent Office fees relating to filing the following attached papers:

New application \$395.00


A duplicate copy of this paper is being submitted for use in the Accounting Division, Office of Finance.

The Commissioner is authorized to charge any deficiency or to credit any overpayment associated with this communication to Deposit Account No. 23-0975, with the EXCEPTION of deficiencies in fees for multiple dependent claims in new applications.

Respectfully submitted,

Michael HUNG

By:


Nils E. Pedersen
Registration No. 33,145
Attorney for Applicant

NEP/pth
WENDEROTH, LIND & PONACK
805 Fifteenth St., N.W., Suite 700
Washington, D.C. 20005
Telephone (202) 371-8850

February 13, 1998

[Check No. 27311]

656720-4642050

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of :
Michael HUNG :
Serial No. NEW : Attn: APPLICATION BRANCH
Filed February 13, 1998 : Docket No. 518/K16-106
SHUTTLE VALVE OF A
RECIPROCATING PNEUMATIC
MOTOR FOR HYDRAULICS :

CHANGE OF ADDRESS

Assistant Commissioner for Patents,
Washington, D.C.

Sir:

Effective MARCH 1, 1998, please note the following

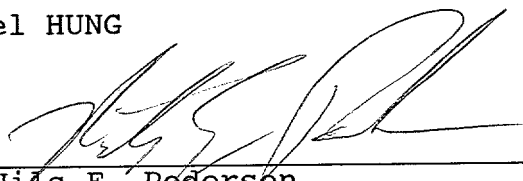
change of address for the undersigned attorney of record:

**WENDEROTH, LIND & PONACK
2033 "K" Street N.W.
Suite 800
Washington, D.C. 20006**

Respectfully submitted,

Michael HUNG

By:


Nils E. Pedersen
Registration No. 33,145
Attorney for Applicant

Washington, D.C.
February 13, 1998
/pth

090374 4622060

SHUTTLE VALVE OF A RECIPROCATING PNEUMATIC MOTOR FOR HYDRAULICS

(a) Field of the Invention:

(b) Description of the Prior Art:

[illegible]

The present invention improves the structure of the shuttle valve indicated in US Pat. No. 5,341,723. The shuttle valve has a press rod and a compression spring mounted in a longitudinal center through hole in the valve body thereof. The press rod is forced out of the front end of the body of the shuttle valve by the compression spring to press against the cylinder cover of the reciprocating pneumatic motor, enabling the shuttle valve to shut off automatically at an early stage so as to extend the piston stroke when the pneumatic piston bears the load, or to shorten the piston stroke when the pneumatic piston bears no load.

Figure 1 is an exploded view of a reciprocating pneumatic motor constructed according to the present invention.

Figure 2 is a cross-sectional view of the motor in a stage before compression according to the present invention.

Figure 3 is a cross-sectional view of the motor showing the external air path as it enters the cylinder to push the pneumatic piston according to the present invention.

Figure 4 is a cross-sectional view of the motor showing the shuttle valve in an open position according to the present invention.

Figure 5 is a cross-sectional view of the motor showing the shuttle valve in a closed position at the air of the first cycle of the operation according to the present invention.

Figure 6 is a perspective view of a hydraulic jack with the reciprocating pneumatic motor according to the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to Figures 1 and 2, a reciprocating pneumatic motor is shown comprised of a cylinder 1 having a pneumatic piston 4 and a piston rod 5 therein, a cylinder cover 2 and a bottom cover 3. The cylinder 1 has the cylinder cover 2 on its top and the bottom cover 3 on its bottom, said covers are preferably joined one at each end of cylinder, using hex bolts 21. At a selected location in the cylinder body is a pair of corresponding guide grooves 11 which protrude from the exterior wall. The guide grooves 11 are punched directly during fabrication and do not require additional machining or grinding. The cylinder cover 2 has bolt holes 22 in the four corners thereof for the hex bolts 21 to extend through and an air inlet hole 23 is opened at a selected location on the cylinder cover 2. The bottom cover 3 also has bolt holes 31 in the four corners thereof for the hex bolts 21 to be screwed in. The center of the bottom cover 3 has a central hole 32 for a piston pump 33 to extend through. The surface and the edge of the bottom cover 3 have a plurality of

L-shaped holes **34**. The inside diameter of an upper portion of the piston pump **33** has a liner **331** and an O-ring **332** which extend through the bottom cover **3** and lock onto a piston pump cover **35**. The lower portion of the piston pump **33** has an oil seal **333**, a washer **334** and a hex nut **335**. The pneumatic piston **4** is a circular body having a first seal ring **41** on its top and a second seal ring **41'** on its bottom. The circular body of the pneumatic piston **4** has an indented surface on which a ring plate **42** is joined with an appropriate gap **422**, as shown in Figure 2. The central part of the indented surface of the circular piston body has a central slotted hole (not shown) from which a radial air inlet hole **44** is connected. The indented surface has an air vent hole **45** which is located closely to the central slotted hole (not shown). A shuttle compression chamber **47** is formed at the indented surface of the circular body of the pneumatic piston **4**. A shuttle valve **6** is mounted between the pneumatic piston **4** and the ring plate **42**, and moved to control the passage between the shuttle compression chamber **47** and the radial air inlet hole **44**. The piston rod **5** has one end extending through the piston pump cover **35** into the piston pump **33** and the other end is locked onto a spring base **51** from which a coiled spring **52** is attached. The spring base **51** is snug to the bottom of the pneumatic piston **4**. The stretching of the coiled spring **52** enables the

reciprocating movement of the piston rod 5.

The body of the shuttle valve 6 has a longitudinal center through hole 61 through its longitudinal central axis, and an inside annular flange 62 at the front end of the longitudinal center through hole 61. The rear end of the longitudinal center through hole 61 is covered with an end cap 65. A compression spring 64 is mounted inside the longitudinal center through hole 61 and supported on the end cap 65. A press rod 63 is supported on the compression spring 64 inside the longitudinal center through hole 61, having a front end extending out of the inside annular flange 62 and an outward flange 631 raised around a rear end thereof and supported on the compression spring 64. The compression spring 64 imparts an outward pressure to the press rod 63, causing it to extend out of the front end of the body of the shuttle valve 6. The inside annular flange 62 of the body of the shuttle valve 6 stops the outward flange 631 of the press rod 63 from passing through. Further, a gasket ring 66 and an oil seal ring 67 are mounted around the outside wall of the body of the shuttle valve 6 near its two opposite ends.

Referring to Figures 2 and 3, compressed air entering from the air inlet hole 23 of the cylinder cover 2 pushes the pneumatic piston 4 forwards. When the first seal ring 41 passes the guided grooves 11, a gap is formed. This gap allows the air to pass

through the radial air inlet hole 44 and into the shuttle compression chamber 47, as shown in the direction of the arrow in Figure 3. Since the bottom surface area of the shuttle valve 46 is larger than its top surface area, therefore, under the same force condition, the pressure exerted on the bottom surface area is higher than of the top surface area. This higher pressure can push the shuttle valve 6 forward and open up the air vented hole 45. At the same time, an air gap is formed (as shown in Figure 4) between the shuttle valve 6 and the ring plate 42 which allows air to pass through to the air vented hole 45 and rapidly vent through the L-shaped holes 34 to the outside. The venting lowers the pressure to a point that the tension of the coiled spring 52 pushes the piston rod 5 backward to its original state. The remaining air in the shuttle compression chamber 47 passes through the gap between the second seal ring 41' and the guided grooves 11 and is vented out through the L-shaped holes 34, as shown in Figure 5. When the air in the shuttle compression chamber 47 is completely vented, the shuttle valve 46 shuts off automatically and returns to its original state, as shown in Figure 2. The compressed air going in and the venting are happening instantaneously, therefore the piston rod 5 begins reciprocating.

As indicated above, the shuttle valve 6 has the press rod 63

and the compression spring 64 in it. The press rod 63 is used to press against the cylinder cover 2, enabling the shuttle valve 6 to shut off automatically at an early stage, so as to shorten the stroke of the pneumatic piston 4. When the pneumatic piston 4 bears the load, the front air chamber, referenced by A, has a relatively higher pressure, which passes the guide grooves 11 to push open the shuttle valve 6, and is then accumulated in the shuttle compression chamber 47 after the shuttle valve 6 has been opened. When the pneumatic piston 4 moves to the guide grooves 11 (see Figure 3), the shuttle valve 6 starts to shut off, and air must be carried away from the shuttle compression chamber 47. Because the L-shaped holes 34 are throttled at this stage, high pressure air which comes from the front air chamber A is not completely exhausted, much pressure is needed to close the shuttle valve 6, thereby causing the compression stroke of the compression spring 64 as well as the stroke of the pneumatic piston 4 to be relatively increased.

As indicated above, the stroke of the pneumatic piston 4 is relatively increased and its speed is relatively slowed down when bearing the load. On the contrary, when the pneumatic piston 4 bears no load, its stroke is relatively shortened, and its speed is relatively accelerated.

What the invention claimed is:

1. A shuttle valve mounted between a pneumatic piston and a ring plate in a reciprocating pneumatic motor and moved to control the passage between a shuttle compression chamber and a radial air inlet hole in the pneumatic piston, the shuttle valve comprising a valve body having a longitudinal center through hole and an inside annular flange at one end of said longitudinal center through hole, an end cap fixedly fastened to one end of said longitudinal center through hole on said valve body remote from said inside annular flange, a compression spring mounted inside said longitudinal center through hole and supported on said end cap, a press rod supported on said compression spring inside said longitudinal center through hole, said press rod having a front end extending out of said valve body and an outward flange raised around a rear end thereof and supported on said compression spring, the outward flange of said press rod being stopped by said inside annular flange from passing out of said valve body, a gasket ring and an oil seal ring respectively mounted around said valve body on the outside near two opposite ends thereof.

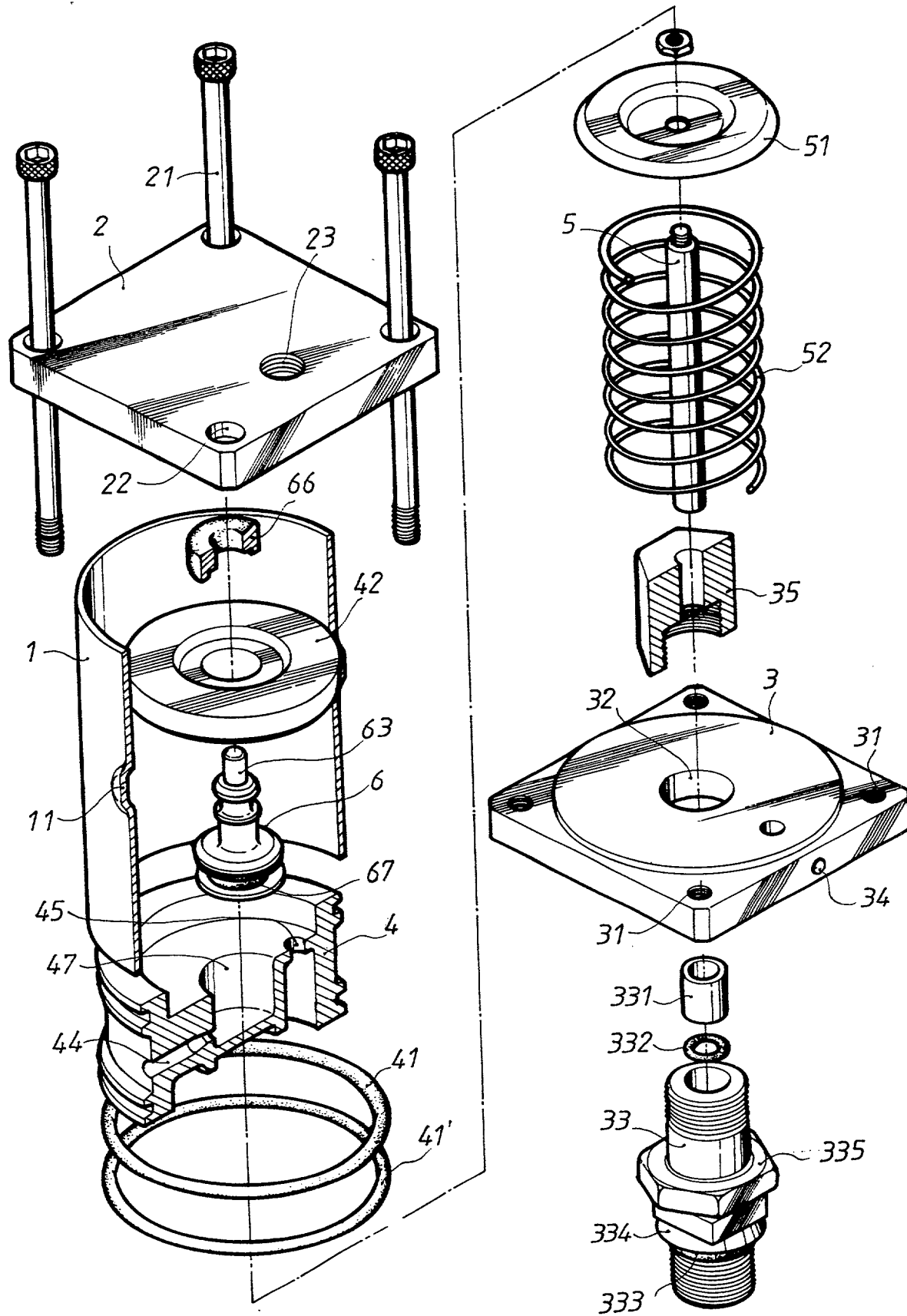


FIG. 1

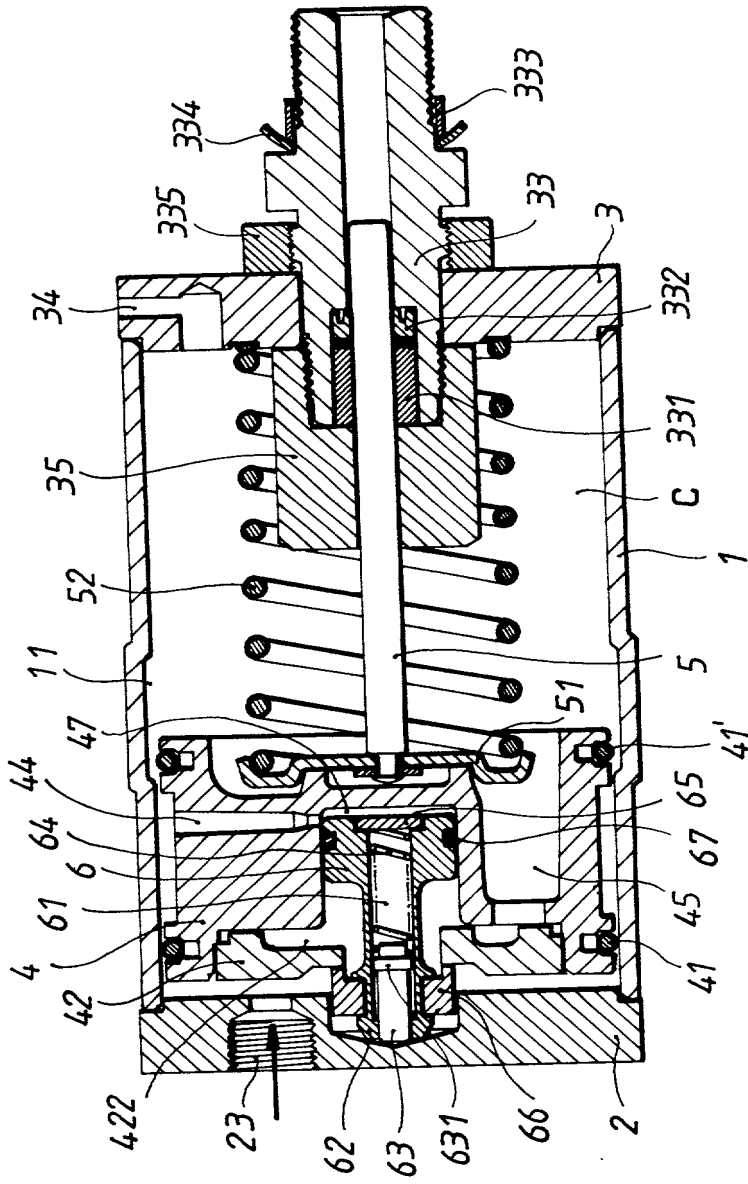


FIG. 2

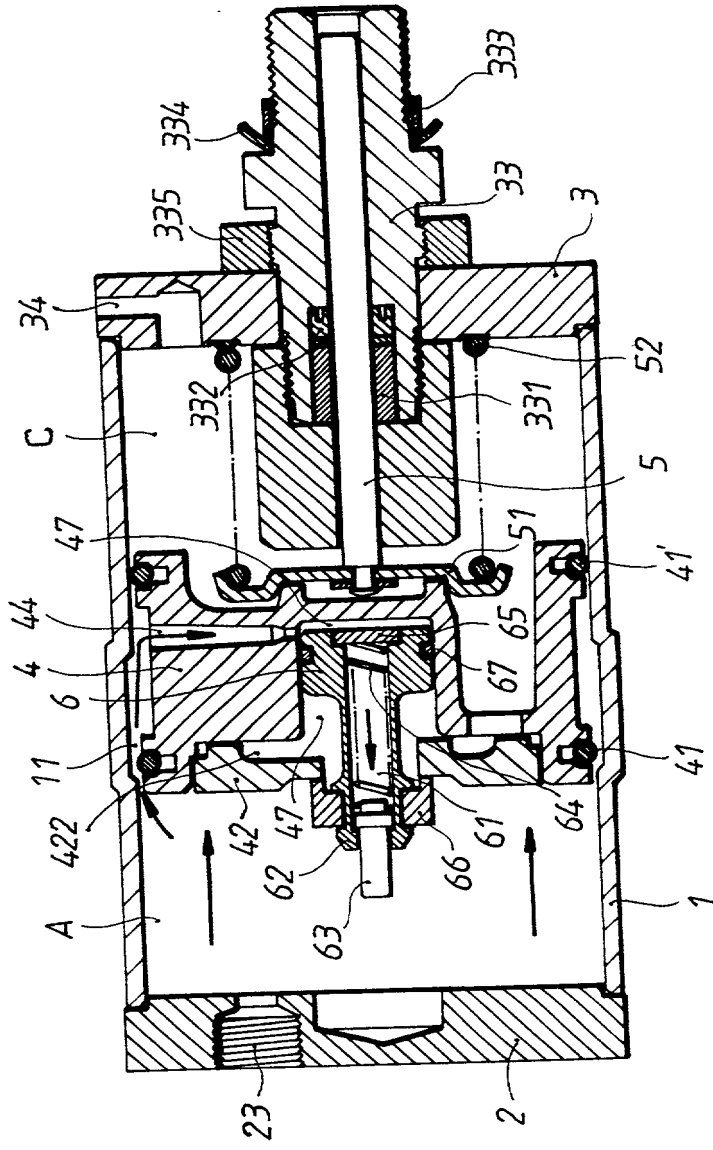


FIG. 3

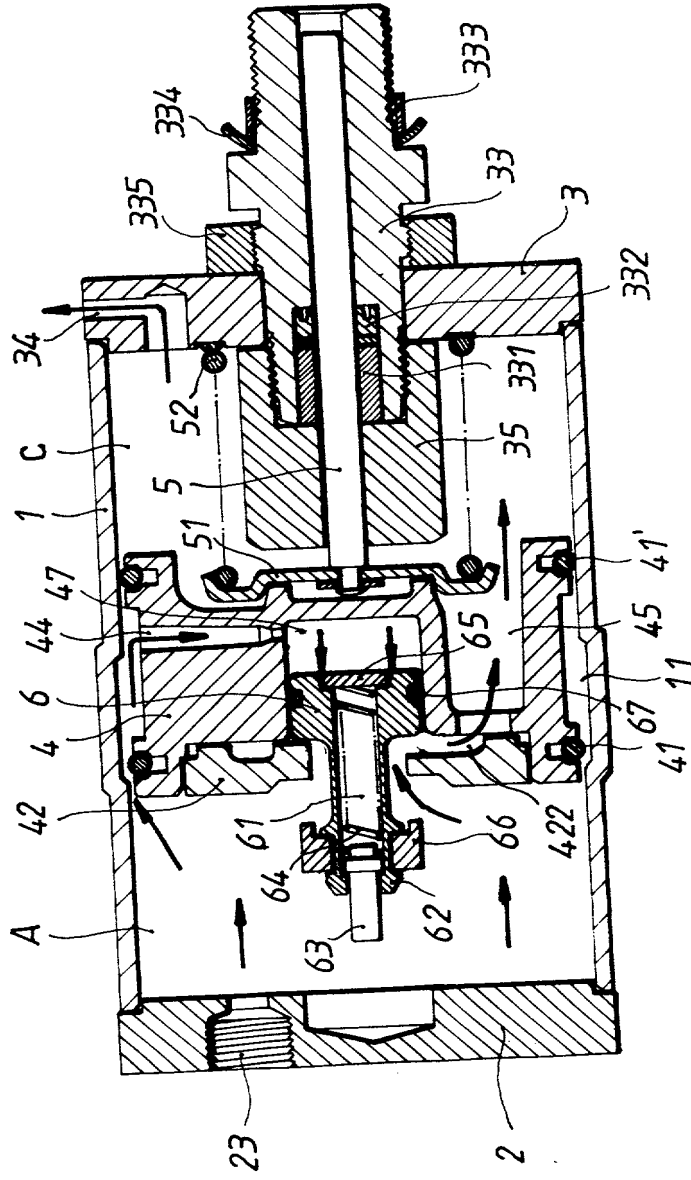


FIG. 4

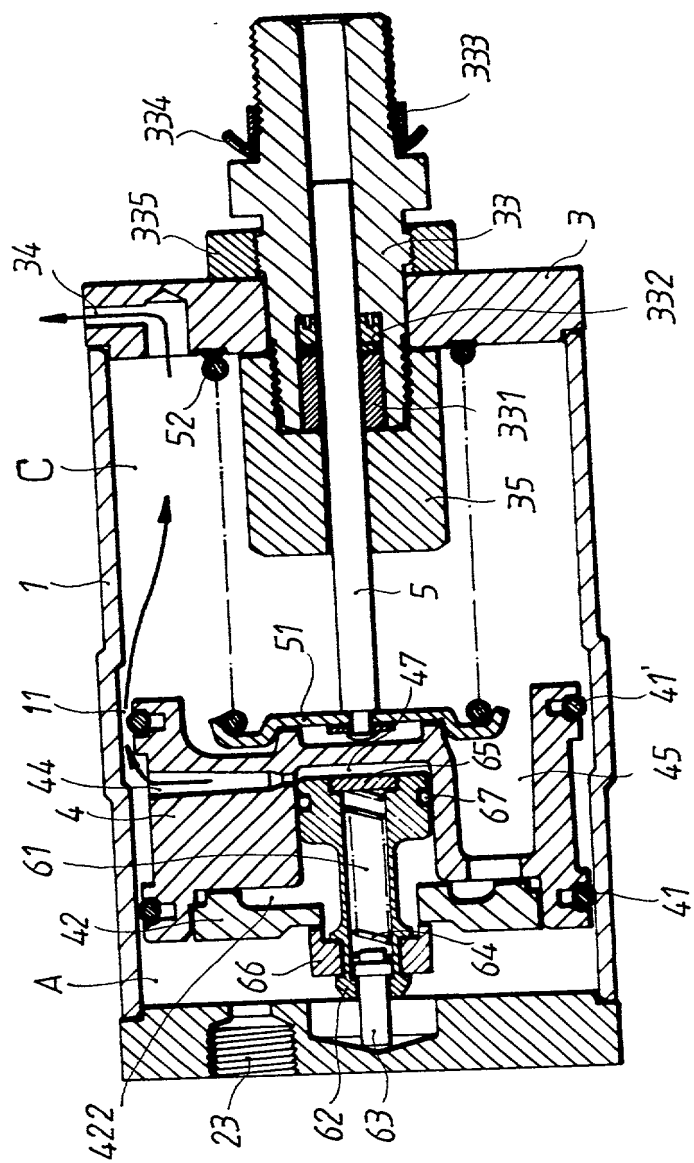


FIG. 5

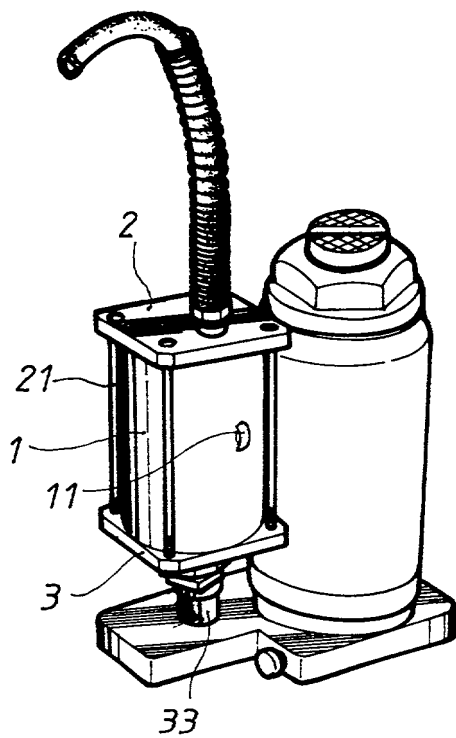


FIG. 6

(X) Original () Supplemental () Substitute () PCT () DESIGN

Title: SHUTTLE VALVE OF A RECIPROCATING PNEUMATIC MOTOR FOR HYDRAULICS

(X) the attached specification, or
() the specification in the application Serial No. _____ filed _____;
and with amendments through _____ (if applicable),
() the specification in International Application No. PCT/_____, filed _____,
and as amended on _____ (if applicable).

I acknowledge my duty to disclose information of which I am aware which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 (and §172 if this application is for a Design) of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

[illegible]

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

SERIAL NO.	U.S. FILING DATE	STATUS
		() Patented () Pending () Abandoned
		() Patented () Pending () Abandoned
		() Patented () Pending () Abandoned

And I hereby appoint V. M. Creedon, Reg. No. 17111, John T. Miller, Reg. No. 21120, John T. Fedigan, Reg. No. 24347, Michael R. Davis, Reg. No. 25134, Matthew M. Jacob, Reg. No. 25154, Jeffrey Nolton, Reg. No. 25408, and Henry M. Zykorie, Reg. No. 27477, who together constitute the firm of WENDEROTH, LIND & PONACK, jointly and severally, attorneys to prosecute this application and to transact all business in the U.S. Patent and Trademark Office connected therewith.

I hereby authorize the U.S. attorneys named herein to accept and follow instructions from Kingword International PT & TM Office as to any action to be taken in the U.S. Patent and Trademark Office regarding this application without direct communication between the U.S. attorneys and myself. In the event of a change in the persons from whom instructions may be taken, the U.S. attorneys named herein will be so notified by me.

Send Correspondence to:

Direct Telephone Calls to:

WENDEROTH, LIND & PONACK
Southern Building - Suite 700
805 Fifteenth Street, N.W.
Washington, D.C. 20005

WENDEROTH, LIND & PONACK
Area Code (202) 371-8850

Variable	Mean	SD	Min	Max
Age	35.2	12.5	18	65
Gender	Male	100%	Male	Male
Marital status	Married	100%	Married	Married
Education	High school	100%	High school	High school
Occupation	Teacher	100%	Teacher	Teacher
Income	1000 TL	100%	1000 TL	1000 TL
Religion	Islam	100%	Islam	Islam
Health status	Good	100%	Good	Good
Smoking status	Non-smoker	100%	Non-smoker	Non-smoker
Alcohol consumption	No	100%	No	No
Stress level	Low	100%	Low	Low
Life satisfaction	High	100%	High	High
Family size	3	100%	3	3
Household size	3	100%	3	3
Neighborhood size	3	100%	3	3
City size	3	100%	3	3
Country size	3	100%	3	3
World size	3	100%	3	3
Universe size	3	100%	3	3
Total size	3	100%	3	3
Sample size	3	100%	3	3
Population size	3	100%	3	3
Community size	3	100%	3	3
Society size	3	100%	3	3
Human size	3	100%	3	3
Animal size	3	100%	3	3
Plant size	3	100%	3	3
Mineral size	3	100%	3	3
Energy size	3	100%	3	3
Information size	3	100%	3	3
Knowledge size	3	100%	3	3
Wisdom size	3	100%	3	3
Power size	3	100%	3	3
Wealth size	3	100%	3	3
Health size	3	100%	3	3
Beauty size	3	100%	3	3
Strength size	3	100%	3	3
Speed size	3	100%	3	3
Agility size	3	100%	3	3
Endurance size	3	100%	3	3
Flexibility size	3	100%	3	3
Balance size	3	100%	3	3
Coordination size	3	100%	3	3
Reaction size	3	100%	3	3
Attention size	3	100%	3	3
Memory size	3	100%	3	3
Reasoning size	3	100%	3	3
Problem-solving size	3	100%	3	3
Decision-making size	3	100%	3	3
Communication size	3	100%	3	3
Interpersonal skills size	3	100%	3	3
Teamwork size	3	100%	3	3
Leadership size	3	100%	3	3
Management size	3	100%	3	3
Organization size	3	100%	3	3
Planning size	3	100%	3	3
Time management size	3	100%	3	3
Stress management size	3	100%	3	3
Emotional regulation size	3	100%	3	3
Self-regulation size	3	100%	3	3
Self-awareness size	3	100%	3	3
Empathy size	3	100%	3	3
Compassion size	3	100%	3	3
Kindness size	3	100%	3	3
Generosity size	3	100%	3	3
Gratitude size	3	100%	3	3
Optimism size	3	100%	3	3
Resilience size	3	100%	3	3
Perseverance size	3	100%	3	3
Determination size	3	100%	3	3
Confidence size	3	100%	3	3
Self-esteem size	3	100%	3	3
Self-worth size	3	100%	3	3
Self-respect size	3	100%	3	3
Self-love size	3	100%	3	3
Self-care size	3	100%	3	3
Self-improvement size	3	100%	3	3
Personal growth size	3	100%	3	3
Life goals size	3	100%	3	3
Values size	3	100%	3	3
Beliefs size	3	100%	3	3
Attitudes size	3	100%	3	3
Behaviors size	3	100%	3	3
Habits size	3	100%	3	3
Skills size	3	100%	3	3
Abilities size	3	100%	3	3
Talents size	3	100%	3	3
Interests size	3	100%	3	3</

Effective March 7, 1988

FULL NAME OF 1ST INVENTOR	FAMILY NAME HUNG	FIRST GIVEN NAME Michael	SECOND GIVEN NAME
RESIDENCE & CITIZENSHIP	CITY Tao Yuan County	STATE OR COUNTRY Taiwan	COUNTRY OF CITIZENSHIP Republic of China
POST OFFICE ADDRESS	ADDRESS 9-16, Nan Kan Hsia, Nan Kan, Lu Chu Hsiang, Tao Yuan County, Taiwan	CITY	STATE OR COUNTRY ZIP CODE R.O.C.
FULL NAME OF 2ND INVENTOR	FAMILY NAME	FIRST GIVEN NAME	SECOND GIVEN NAME
RESIDENCE & CITIZENSHIP	CITY	STATE OR COUNTRY	COUNTRY OF CITIZENSHIP
POST OFFICE ADDRESS	ADDRESS	CITY	STATE OR COUNTRY ZIP CODE
FULL NAME OF 3RD INVENTOR	FAMILY NAME	FIRST GIVEN NAME	SECOND GIVEN NAME
RESIDENCE & CITIZENSHIP	CITY	STATE OR COUNTRY	COUNTRY OF CITIZENSHIP
POST OFFICE ADDRESS	ADDRESS	CITY	STATE OR COUNTRY ZIP CODE
FULL NAME OF 4TH INVENTOR	FAMILY NAME	FIRST GIVEN NAME	SECOND GIVEN NAME
RESIDENCE & CITIZENSHIP	CITY	STATE OR COUNTRY	COUNTRY OF CITIZENSHIP
POST OFFICE ADDRESS	ADDRESS	CITY	STATE OR COUNTRY ZIP CODE
FULL NAME OF 5TH INVENTOR	FAMILY NAME	FIRST GIVEN NAME	SECOND GIVEN NAME
RESIDENCE & CITIZENSHIP	CITY	STATE OR COUNTRY	COUNTRY OF CITIZENSHIP
POST OFFICE ADDRESS	ADDRESS	CITY	STATE OR COUNTRY ZIP CODE
FULL NAME OF 6TH INVENTOR	FAMILY NAME	FIRST GIVEN NAME	SECOND GIVEN NAME
RESIDENCE & CITIZENSHIP	CITY	STATE OR COUNTRY	COUNTRY OF CITIZENSHIP
POST OFFICE ADDRESS	ADDRESS	CITY	STATE OR COUNTRY ZIP CODE

I further declare that all statements made herein of my own knowledge are true, and that all statements on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

1st Inventor Michael Hung Date February 2, 1998
 Michael HUNG
 2nd Inventor _____ Date _____
 3rd Inventor _____ Date _____
 4th Inventor _____ Date _____
 5th Inventor _____ Date _____
 6th Inventor _____ Date _____

The above application may be more particularly identified as follows:

U. S. Application Serial No. _____ Filing Date _____
 Applicant Reference Number _____ Atty Docket No. _____
 Title of Invention _____

09023794-031398

THE COMMISSIONER IS AUTHORIZED
TO CHARGE ANY DEFICIENCY IN THE
FEE FOR THIS PAPER TO DEPOSIT
ACCOUNT NO. 23 0975.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of :
Michael HUNG :
Serial No. NEW : ATTN: APPLICATION BRANCH
Filed February 13, 1998 : Attorney Docket No.
518/K16-106
SHUTTLE VALVE OF A :
RECIPROCATING PNEUMATIC
MOTOR FOR HYDRAULICS

**COVER LETTER RE: DECLARATION SUPPORTING CLAIM
FOR SMALL ENTITY STATUS**

Assistant Commissioner for Patents,
Washington, D.C.

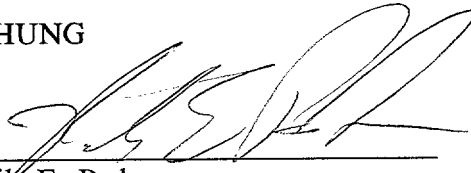
Sir:

Submitted herewith is a Declaration Supporting Claim for Small Entity Status in
the subject application.

Respectfully submitted,

Michael HUNG

By:


Nils E. Pedersen
Registration No. 33,145
Attorney for Applicant

NEP/pth
Washington, D.C.
Telephone (202) 371-8850

February 13, 1998

RECEIVED 4622060

DECLARATION SUPPORTING CLAIM FOR SMALL ENTITY STATUS

The undersigned hereby declare(s) that this statement is made to support a claim by the below identified entity for purposes of paying reduced fees under Secs. 41(a) and (b) of Title 35, United States Code, with regard to an invention entitled SHUTTLE VALVE OF A RECIPROCATING PNEUMATIC MOTOR FOR HYDRAULICS

invented by Michael HUNG and described in

- ☒ the specification filed herewith.
☐ application Serial No. _____, filed _____.
☐ Patent No. _____, issued _____.

☒ a. I am/we are the inventor(s) of the above-identified invention.
☐ b. I/we would qualify as (an) independent inventor(s) as defined in 37 CFR 1.9(c) if I/we had made the above-identified invention, and rights under contract law with regard to the above-identified invention have been conveyed to and remain with me/us.

☐ c. I am ☐ the owner
☐ an official of the below-identified small business concern; rights under contract law with regard to the above-identified invention have been conveyed to and remain with the below-identified small business concern; and this concern qualifies as a small business concern as defined in 13 CFR 121.3-18, and reproduced in 37 CFR 1.9(d), for purposes of paying reduced fees under sections 41(a) and (b) of Title 35, United States Code, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons, said number being determined and said affiliates being defined in 13 CFR 121.3-18.

No rights in the invention have been assigned, granted, conveyed or licensed or further assigned, granted, conveyed or licensed, and there is no obligation under contract or law to assign, grant, convey or license, or further assign, grant, convey or license such rights to any person who could not be classified as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which any rights in the invention have been assigned, granted, conveyed, or licensed or further assigned, granted, conveyed, or licensed or further assign, grant, convey or license, or as to where there is an obligation under contract or law to assign, grant, convey, or license such rights is listed below:

- ☐ no such person, concern, or organization
☐ persons, concerns or organizations listed below*

*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

FULL NAME _____
ADDRESS _____


☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

FULL NAME _____
ADDRESS _____

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

I/we acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I/we hereby declare that all statements made herein of my/our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this declaration is directed.

Michael HUNG  February 2, 1998
NAME SIGNATURE DATE

NAME SIGNATURE DATE

NAME OF SMALL BUSINESS CONCERN ADDRESS

NAME SIGNATURE DATE

TITLE _____